Appendix H

Water Model

DETAILED WATER DEMANDS - CASSELMAN PHASE 1

Water Usage Data	TOTAL NO. OF RESIDENTIAL UNITS (1)(3)	TOTAL RESIDENTIAL POP. (1)(3)	TOTAL AVG. DAY DEMAND (L/s) (2)	TOTAL MAX. DAY DEMAND (L/s) (2)	TOTAL PEAK HOUR DEMAND (L/s) (2)
	1695	4,048	12	23	34

Water Usage Data				
TOTAL RES. FLOWS (L/s)	8.19	18.68	26.56
TOTAL ICI FLOWS (L/s)	3.32	4.12	6.12
TOTAL SCHOOL FLOWS (L/s)	0.49	0.20	1.31

Notes:	1) Existing units and populations for residential areas within the municipality are based on Watson's Report (2023)	
	2) Total ADD, MDD and PHD are based on 5 year average metered data from 2018 to 2022	
	3) Average Unit Density is assumed as 2.39 persons per unit (Watson's Report, 2023)	
Legend:	(No Colour)	Residential Areas
	(Green)	ICI Flows per 2010 Water Model
	(Yellow)	New Areas Part of 2022 Model
	(Orange)	School

DETAILED WATER USAGE BREAKDOWN IN MODEL

NODE ID	NO. OF UNITS (SINGLES)	POP'N	AVG. DAY DEMAND (L/s)	MAX. DAY DEMAND (L/s)	PEAK HOUR DEMAND (L/s)
J-1	11.29	26.97	0.05	0.12	0.18
J-2	21.46	51.24	0.10	0.23	0.34
J-2			0.07	0.09	0.11
J-3	6.78	16.18	0.03	0.07	0.11
J-3			0.18	0.22	0.27
J-4	7.90	18.88	0.04	0.08	0.12
J-4			0.01	0.02	0.02
J-5	19.20	45.85	0.09	0.20	0.30
J-5			0.12	0.14	0.17
J-7	14.68	35.06	0.07	0.15	0.23
J-7			0.13	0.17	0.20

DETAILED WATER USAGE BREAKDOWN IN MODEL					
NODE ID	NO. OF UNITS (SINGLES)	POP'N	AVG. DAY DEMAND (L/s)	MAX. DAY DEMAND (L/s)	PEAK HOUR DEMAND (L/s)
J-8	11.29	26.97	0.05	0.12	0.18
J-9			0.01	0.01	0.01
J-10	6.78	16.18	0.03	0.07	0.11
J-10			0.07	0.09	0.10
J-11	5.65	13.48	0.03	0.06	0.09
J-11			0.09	0.11	0.13
J-12	6.78	16.18	0.03	0.07	0.11
J-12			0.12	0.15	0.18
J-13	18.07	43.15	0.09	0.19	0.28
J-13			0.01	0.01	0.01
J-14	11.29	26.97	0.05	0.12	0.18
J-14			0.03	0.04	0.05
J-15	5.65	13.48	0.03	0.06	0.09
J-16	14.68	35.06	0.07	0.15	0.23
J-17	5.65	13.48	0.03	0.06	0.09
J-18	7.90	18.88	0.04	0.08	0.12
J-18			0.01	0.01	0.02
J-19	5.65	13.48	0.03	0.06	0.09
J-20	11.29	26.97	0.05	0.12	0.18
J-21	9.03	21.57	0.04	0.10	0.14
J-23	7.90	18.88	0.04	0.08	0.12
J-24	11.29	26.97	0.05	0.12	0.18
J-25			0.00	0.00	0.00
J-26	19.20	45.85	0.09	0.20	0.30
J-27	4.52	10.79	0.02	0.05	0.07
J-28			0.03	0.03	0.04
J-29	7.90	18.88	0.04	0.08	0.12
J-29			0.00	0.01	0.01
J-30	10.16	24.27	0.05	0.11	0.16
J-31	16.94	40.45	0.08	0.18	0.27
J-32	24.84	59.33	0.12	0.24	0.39

DETAILED WATER USAGE BREAKDOWN IN MODEL					
NODE ID	NO. OF UNITS (SINGLES)	POP'N	AVG. DAY DEMAND (L/s)	MAX. DAY DEMAND (L/s)	PEAK HOUR DEMAND (L/s)
J-33	22.58	53.94	0.11	0.01	0.35
J-34			0.01	0.07	0.01
J-35	6.78	16.18	0.03	0.49	0.11
J-36			0.39	0.00	0.58
J-37			0.00	0.18	0.00
J-38	16.94	40.45	0.08	0.07	0.27
J-39	6.78	16.18	0.03	0.07	0.11
J-40			0.06	0.07	0.09
J-41			0.05	0.24	0.08
J-42	22.58	53.94	0.11	0.25	0.35
J-43	23.71	56.63	0.11	0.00	0.37
J-45			0.00	0.14	0.00
J-46	13.55	32.36	0.07	0.24	0.21
J-47	22.58	53.94	0.11	0.03	0.35
J-47			0.03	0.20	0.04
J-48			0.13	0.08	0.36
J-48			0.06	0.14	0.09
J-49	13.55	32.36	0.07	0.13	0.21
J-50	12.42	29.67	0.06	0.26	0.19
J-51	24.84	59.33	0.12	0.19	0.39
J-52	18.07	43.15	0.09	0.24	0.28
J-53	22.58	53.94	0.11	0.13	0.35
J-54	12.42	29.67	0.06	0.17	0.19
J-55	15.81	37.76	0.08	0.06	0.25
J-56	5.65	13.48	0.03	0.07	0.09
J-59	6.78	16.18	0.03	0.13	0.11
J-60	12.42	29.67	0.06	0.17	0.19
J-61	15.81	37.76	0.08	0.38	0.25
J-62	36.14	86.30	0.17	0.12	0.57
J-63	11.29	26.97	0.05	0.12	0.18
J-64	11.29	26.97	0.05	0.17	0.18

DETAILED WATER USAGE BREAKDOWN IN MODEL					
NODE ID	NO. OF UNITS (SINGLES)	POP'N	AVG. DAY DEMAND (L/s)	MAX. DAY DEMAND (L/s)	PEAK HOUR DEMAND (L/s)
J-65	15.81	37.76	0.08	0.20	0.25
J-66	19.20	45.85	0.09	0.19	0.30
J-67	18.07	43.15	0.09	0.12	0.28
J-68	11.29	26.97	0.05	0.23	0.18
J-69	21.46	51.24	0.10	0.15	0.34
J-70	14.68	35.06	0.07	0.12	0.23
J-71	11.29	26.97	0.05	0.08	0.18
J-72	7.90	18.88	0.04	0.12	0.12
J-73	11.29	26.97	0.05	0.08	0.18
J-74	7.90	18.88	0.04	0.06	0.12
J-75	5.65	13.48	0.03	0.06	0.09
J-76	5.65	13.48	0.03	0.12	0.09
J-77	11.29	26.97	0.05	0.19	0.18
J-78	18.07	43.15	0.09	0.10	0.28
J-79	9.03	21.57	0.04	0.07	0.14
J-80	6.78	16.18	0.03	0.05	0.11
J-81	4.52	10.79	0.02	0.07	0.07
J-82	6.78	16.18	0.03	0.18	0.11
J-83	16.94	40.45	0.08	0.15	0.27
J-84	14.68	35.06	0.07	0.15	0.23
J-85	14.68	35.06	0.07	0.06	0.23
J-87	5.65	13.48	0.03	0.12	0.09
J-88	11.29	26.97	0.05	0.20	0.18
J-90			0.13	0.10	0.36
J-91			0.08	0.16	0.12
J-92			0.13	0.41	0.19
J-93			0.28	0.09	0.75
J-93			0.07	0.08	0.11
J-94			0.06	0.61	0.09
J-95			0.41	0.05	1.11
J-97	4.52	10.79	0.02	0.05	0.07

DETAILED WATER USAGE BREAKDOWN IN MODEL					
NODE ID	NO. OF UNITS (SINGLES)	POP'N	AVG. DAY DEMAND (L/s)	MAX. DAY DEMAND (L/s)	PEAK HOUR DEMAND (L/s)
J-98	4.52	10.79	0.02	0.10	0.07
J-99	9.03	21.57	0.04	0.10	0.14
J-100	9.03	21.57	0.04	0.15	0.14
J-101	14.68	35.06	0.07	0.17	0.23
J-102	15.81	37.76	0.08	0.11	0.25
J-103	10.16	24.27	0.05	0.12	0.16
J-104	11.29	26.97	0.05	0.12	0.18
J-105	11.29	26.97	0.05	0.30	0.18
J-106	28.23	67.42	0.14	0.11	0.44
J-109	10.16	24.27	0.05	0.17	0.16
J-110	15.81	37.76	0.08	0.11	0.25
J-110			0.08	0.08	0.13
J-113	7.90	18.88	0.04	0.43	0.12
J-114			0.35	0.13	0.52
J-115	12.42	29.67	0.06	0.07	0.19
J-116	6.78	16.18	0.03	0.01	0.11
J-116			0.01	0.05	0.02
J-120	4.52	10.79	0.02	0.13	0.07
J-121	12.42	29.67	0.06	0.07	0.19
J-122	6.78	16.18	0.03	0.17	0.11
J-123	15.81	37.76	0.08	0.13	0.25
J-125	12.42	29.67	0.06	0.02	0.19
J-126	2.26	5.39	0.01	0.12	0.04
J-127	11.29	26.97	0.05	0.13	0.18
J-128	12.42	29.67	0.06	0.12	0.19
J-129	11.29	26.97	0.05	0.14	0.18
J-132			0.11	0.14	0.17
J-135	13.55	32.36	0.07	0.07	0.21
J-136	6.78	16.18	0.03	0.07	0.11
J-137	6.78	16.18	0.03	0.08	0.11
J-138	7.90	18.88	0.04	0.14	0.12

DETAILED WATER USAGE BREAKDOWN IN MODEL					
NODE ID	NO. OF UNITS (SINGLES)	POP'N	AVG. DAY DEMAND (L/s)	MAX. DAY DEMAND (L/s)	PEAK HOUR DEMAND (L/s)
J-139	13.55	32.36	0.07	0.08	0.21
J-140	7.90	18.88	0.04	0.17	0.12
J-141	15.81	37.76	0.08	0.17	0.25
J-142	15.81	37.76	0.08	0.12	0.25
J-143	11.29	26.97	0.05	0.08	0.18
J-145	7.90	18.88	0.04	0.05	0.12
J-147	4.52	10.79	0.02	0.18	0.07
J-148	16.94	40.45	0.08	0.30	0.27
J-154	28.23	67.42	0.14	0.33	0.44
J-155	31.62	75.51	0.15	0.12	0.50
J-181	11.29	26.97	0.05	0.06	0.18
J-183	5.65	13.48	0.03	0.14	0.09
J-184	13.55	32.36	0.07	0.73	0.21
J-185			0.49	0.20	1.31
J-211	19.20	45.85	0.09	0.27	0.30
J-212	25.97	62.03	0.13	0.26	0.41
J-213	24.84	59.33	0.12	0.15	0.39
J-214	14.68	35.06	0.07	0.14	0.23
J-215	13.55	32.36	0.07	0.08	0.21
J-216	7.90	18.88	0.04	0.10	0.12
J-217	9.03	21.57	0.04	0.26	0.14
J-218	24.84	59.33	0.12	0.21	0.39
J-219	20.33	48.54	0.10	0.13	0.32
J-220	12.42	29.67	0.06	0.37	0.19
J-238	35.01	83.60	0.17	0.12	0.55
J-240	11.29	26.97	0.05	0.08	0.18
J-248	7.90	18.88	0.04	0.08	0.12
J-253	7.90	18.88	0.04	0.19	0.12
J-275	18.07	43.15	0.09	0.07	0.28
J-278	6.78	16.18	0.03	0.05	0.11
J-295	4.52	10.79	0.02	0.24	0.07

DETAILED WATER USAGE BREAKDOWN IN MODEL					
NODE ID	**NO. OF UNITS (SINGLES)**	**POP'N**	**AVG. DAY DEMAND (L/s)**	**MAX. DAY DEMAND (L/s)**	**PEAK HOUR DEMAND (L/s)**
J-296	22.58	53.94	0.11	0.05	0.35
TOTALS	**1695**	**4048**	**12**	**23**	**34**

Casselman Water Model

PMP-1 (Pump curve)

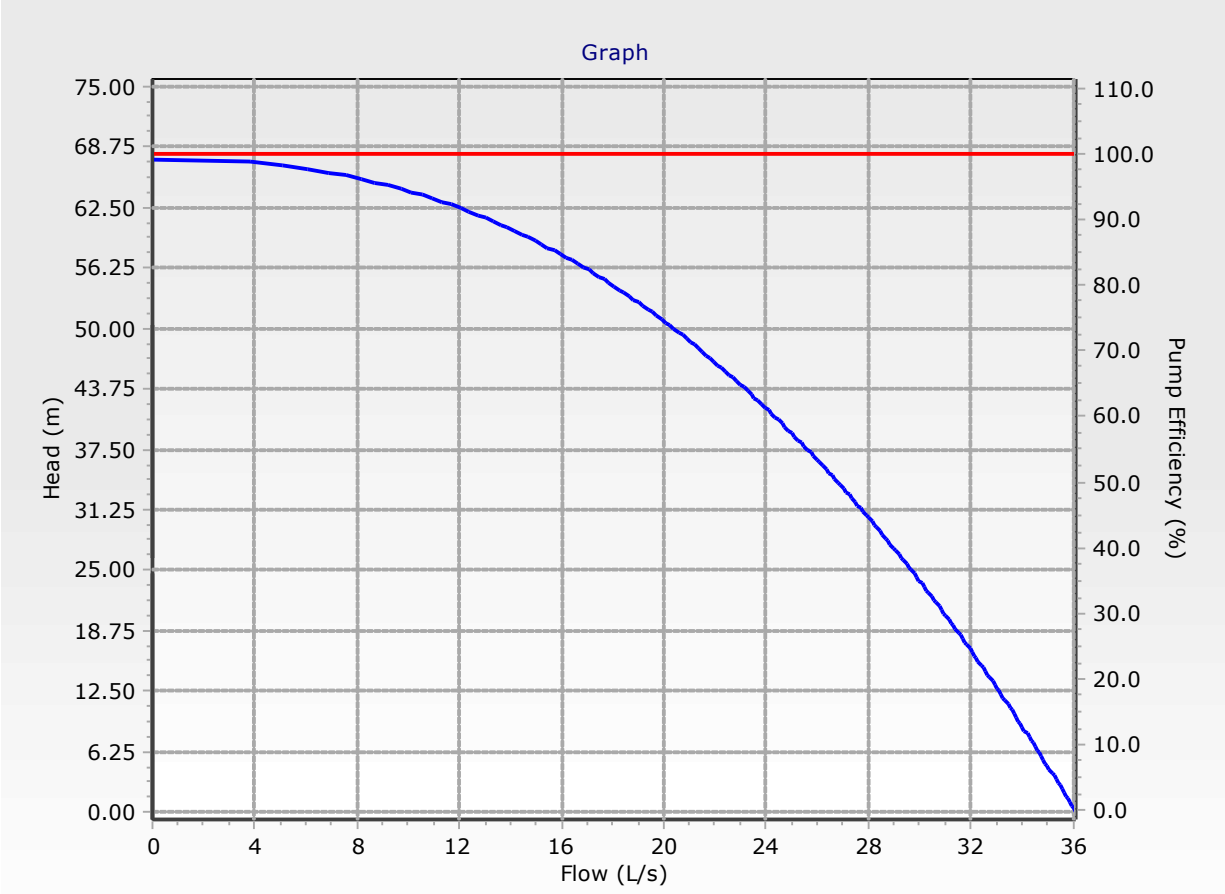
Element Details			
ID	181	Notes	
Label	PMP-1 (Existing)		

Pump Curve

Flow (L/s)	Head (m)
0	67.67
15	57.91
19	53.65
27	34.75

Pump Efficiency Type			
Pump Efficiency Type	Constant Efficiency	Motor Efficiency	100.0 %
Constant Efficiency	100.0 %	Is Variable Speed Drive?	False

Transient (Physical)			
Inertia (Pump and Motor)	0.000 kg·m²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True



Casselman Water Model

PMP-2 (Pump curve)

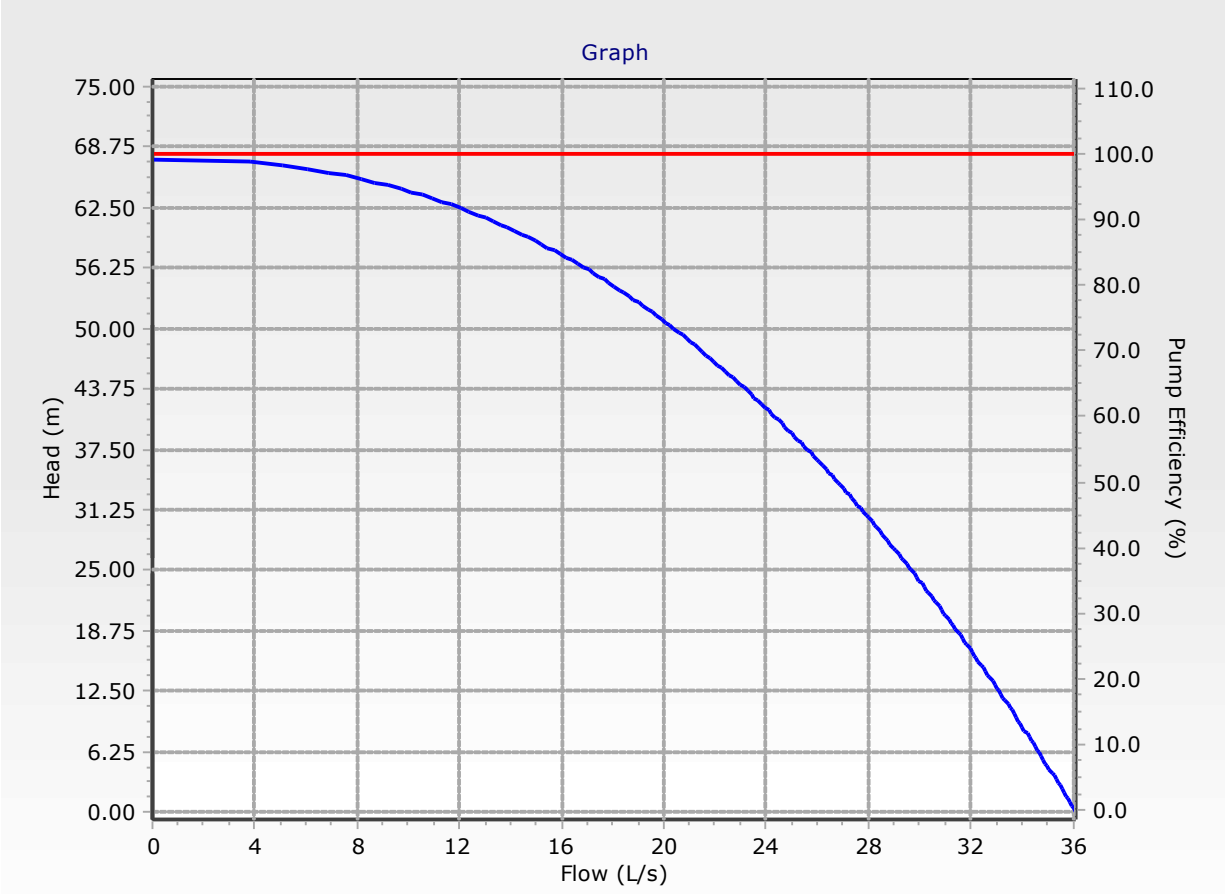
Element Details			
ID	180	Notes	
Label	PMP-2 (Existing)		

Pump Curve

Flow (L/s)	Head (m)
0	67.67
15	57.91
19	53.65
27	34.75

Pump Efficiency Type			
Pump Efficiency Type	Constant Efficiency	Motor Efficiency	100.0 %
Constant Efficiency	100.0 %	Is Variable Speed Drive?	False

Transient (Physical)			
Inertia (Pump and Motor)	0.000 kg·m²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True



1000-343 Preston Street, Ottawa, ON K1S 1N4
Direct: 343-804-9370

J.L. Richards & Associates Limited
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From: Dawn Crump <DCrump@ocwa.com>
Sent: April 26, 2023 1:02 PM
To: Tatyana Roumie <troumie@jlrichards.ca>
Subject: Fwd: 16953-118 Casselman Infrastructure Master Plan - Water Modelling for Phase 2

Response from operations can be found below.

Dawn

Sent from my iPhone

Begin forwarded message:

> **From:** Caroline Lamarche <CLamarche@ocwa.com>
> **Date:** April 26, 2023 at 12:48:19 PM EDT
> **To:** Dawn Crump <DCrump@ocwa.com>
> **Subject: FW: 16953-118 Casselman Infrastructure Master Plan - Water Modelling for Phase 2**
>
> Hi Dawn,
>
> The max psi in town, with the tower full (98%) and the plant running is 52 psi. Other then that, we don't know what 90% equals to in meters. I would assume that the tank height from the tank inspection report is more accurate given that the drawings could have been preliminary...
>
> Hope that helps,
> Caroline
>
> **Caroline Lamarche**
> Process & Compliance Technician
> Nation Valley Cluster
> Cell: (613) 551-3386
> ONTARIO CLEAN WATER AGENCY
> AGENCE ONTARIENNE DES EAUX

From: Erin Markham
Sent: April-26-23 9:20 AM
To: Caroline Lamarche <CLamarche@ocwa.com>; Sebastien Cadieux <SCadieux@ocwa.com>
Subject: RE: 16953-118 Casselman Infrastructure Master Plan - Water Modelling for Phase 2

Ok so he says 36.5 m when it is at 52 psi which is full…1m = 9.8 kpa or 1 psi= 2.31 ft

Hope that helps ☺

Erin Markham
Process & Compliance Technician
Prescott-Russell Cluster
Office: 613-675-1920
Cell: 647-237-1845
ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

From: Caroline Lamarche <CLamarche@ocwa.com>
Sent: April-25-23 3:20 PM
To: Erin Markham <EMarkham@ocwa.com>; Sebastien Cadieux <SCadieux@ocwa.com>
Subject: FW: 16953-118 Casselman Infrastructure Master Plan - Water Modelling for Phase 2

Hi,

Do you know what the % of the Casselman Tower equals in meters? Aka the elevation that corresponds with 90%.

Thanks!
Caroline

Caroline Lamarche
Process & Compliance Technician
Nation Valley Cluster
Cell: (613) 551-3386
ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

From: Dawn Crump <DCrump@ocwa.com>
Sent: April 25, 2023 2:43 PM
To: John Cameron <JCameron@ocwa.com>; Jonathan Hartle <JHartle@ocwa.com>; Caroline Lamarche <CLamarche@ocwa.com>

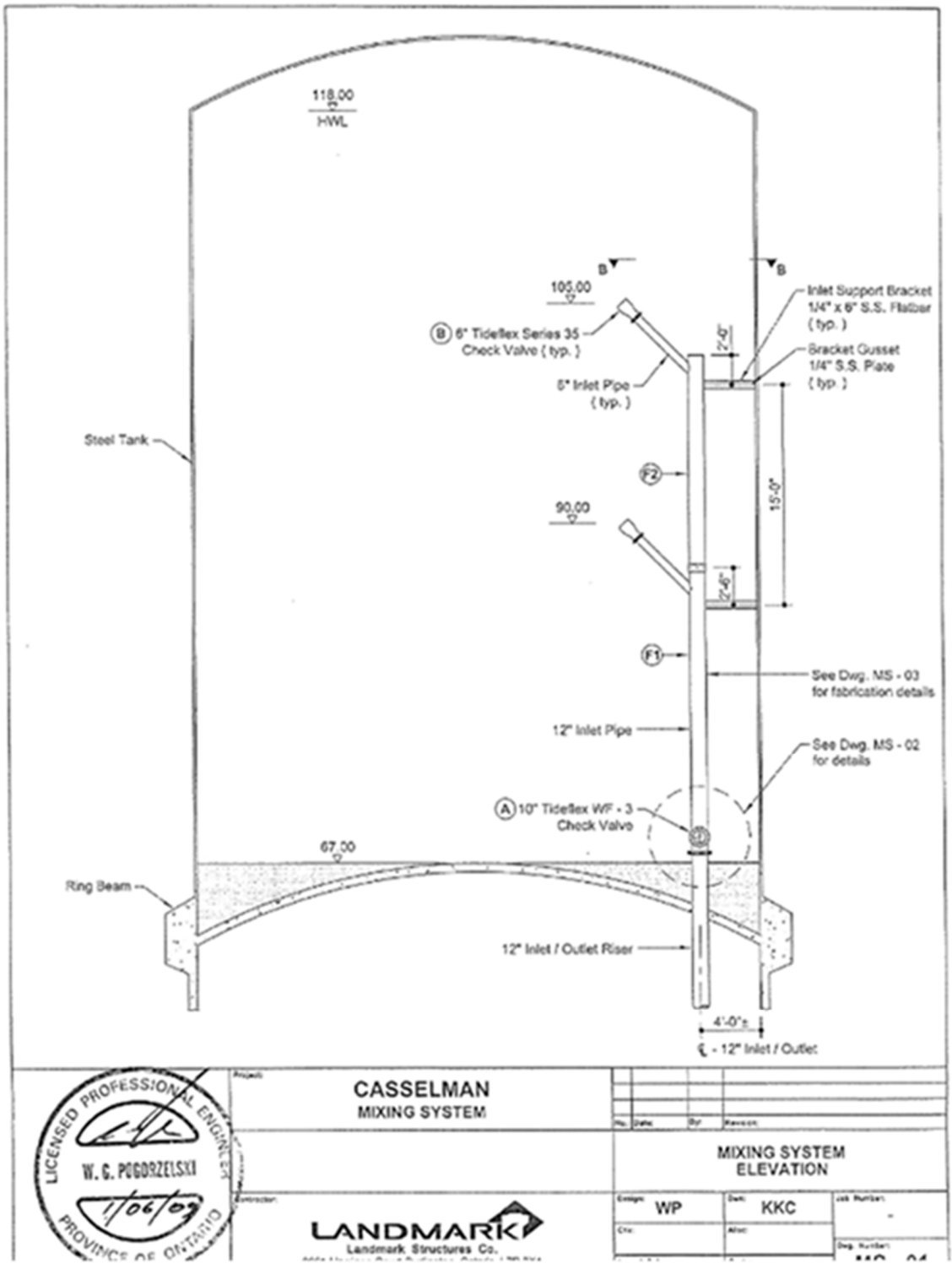
Jingmiao Shi <sshi@jlrichards.ca>
Subject: RE: 16953-118 Casselman Infrastructure Master Plan - Water Modelling for Phase 2

Hi Dawn,

Thanks for your response. There are discrepancies between the Inspection Report you provided and the drawing below. The High Water Level (HWL) in this Report is 111.35 m but the drawing shows 118 m. In the report, the ground elevation is 66.14 m and the tank height is 41.50 m, which results in a tank height of 107.64 m. Therefore, the HWL in the drawing below is higher than the tank height from the report.

You mentioned that the operating levels for the tower on the Scada are for a 90% start and 98% stop. We are trying to determine the elevation that corresponds to the 90%.

Please let me know if you can provide this elevation.



Thanks,
Tatyana

From: Dawn Crump <DCrump@ocwa.com>
Sent: April 19, 2023 8:48 AM

To: Tatyana Roumie <troumie@jlrichards.ca>
Cc: Annie Williams <awilliams@jlrichards.ca>; Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: RE: 16953-118 Casselman Infrastructure Master Plan - Water Modelling for Phase 2

Hi Tatyana,

We are not able to confirm the exact location of the overflow based on the information that we have at this time, but I've attached the most recent tower inspection report here, in case it contains any additional information that may be useful to you.

Dawn

Dawn Crump
Senior Operations Manager
Nation Valley Cluster
Ontario Clean Water Agency
Cell: (613) 223-2207

From: Tatyana Roumie <troumie@jlrichards.ca>
Sent: April-17-23 3:25 PM
To: Dawn Crump <DCrump@ocwa.com>
Cc: Annie Williams <awilliams@jlrichards.ca>; Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: RE: 16953-118 Casselman Infrastructure Master Plan - Water Modelling for Phase 2

Hi Dawn,

I just wanted to follow up with you, we would like to confirm that the standpipe base elevation is 67 m and the standpipe overflow elevation is 118 m (this would be 100% full).

Therefore, the start level would be at 90% of this volume between 67 and 118 m?

Any chance we could receive a response early this week? 😊

Thanks,
Tatyana

Great, thanks!

One last question, do we have an overflow? If so, what is the HGL?

Thanks,
Tatyana

Tatyana Roumie, EIT, M.Eng.
Civil Engineering Intern

J.L. Richards & Associates Limited
1000-343 Preston Street, Ottawa, ON K1S 1N4
Direct: 343-804-9370

From: Dawn Crump <DCrump@ocwa.com>
Sent: April 5, 2023 11:24 AM
To: Tatyana Roumie <troumie@jlrichards.ca>
Cc: Annie Williams <awilliams@jlrichards.ca>; Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: RE: 16953-118 Casselman Infrastructure Master Plan - Water Modelling for Phase 2

Yes, it should be referencing to the top water level.

Dawn

Dawn Crump
Senior Operations Manager
Nation Valley Cluster
Ontario Clean Water Agency
Cell: (613) 223-2207

From: Tatyana Roumie <troumie@jlrichards.ca>
Sent: April-04-23 2:24 PM
To: Dawn Crump <DCrump@ocwa.com>
Cc: Annie Williams <awilliams@jlrichards.ca>; Susan Jingmiao Shi <sshi@jlrichards.ca>

Subject: RE: 16953-118 Casselman Infrastructure Master Plan - Water Modelling for Phase 2

Hi Dawn,

Thank you for the quick response. Are you referring to 90% and 98% of 118 m?

Thanks,
Tatyana

Tatyana Roumie, EIT, M.Eng.
Civil Engineering Intern

J.L. Richards & Associates Limited
1000-343 Preston Street, Ottawa, ON K1S 1N4
Direct: 343-804-9370

From: Dawn Crump <DCrump@ocwa.com>
Sent: April 4, 2023 11:57 AM
To: Tatyana Roumie <troumie@jlrichards.ca>
Cc: Annie Williams <awilliams@jlrichards.ca>; Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: RE: 16953-118 Casselman Infrastructure Master Plan - Water Modelling for Phase 2

Hi Tatyana,

The normal operating levels for the tower on the Scada are for a 90% start and 98% stop.

Dawn

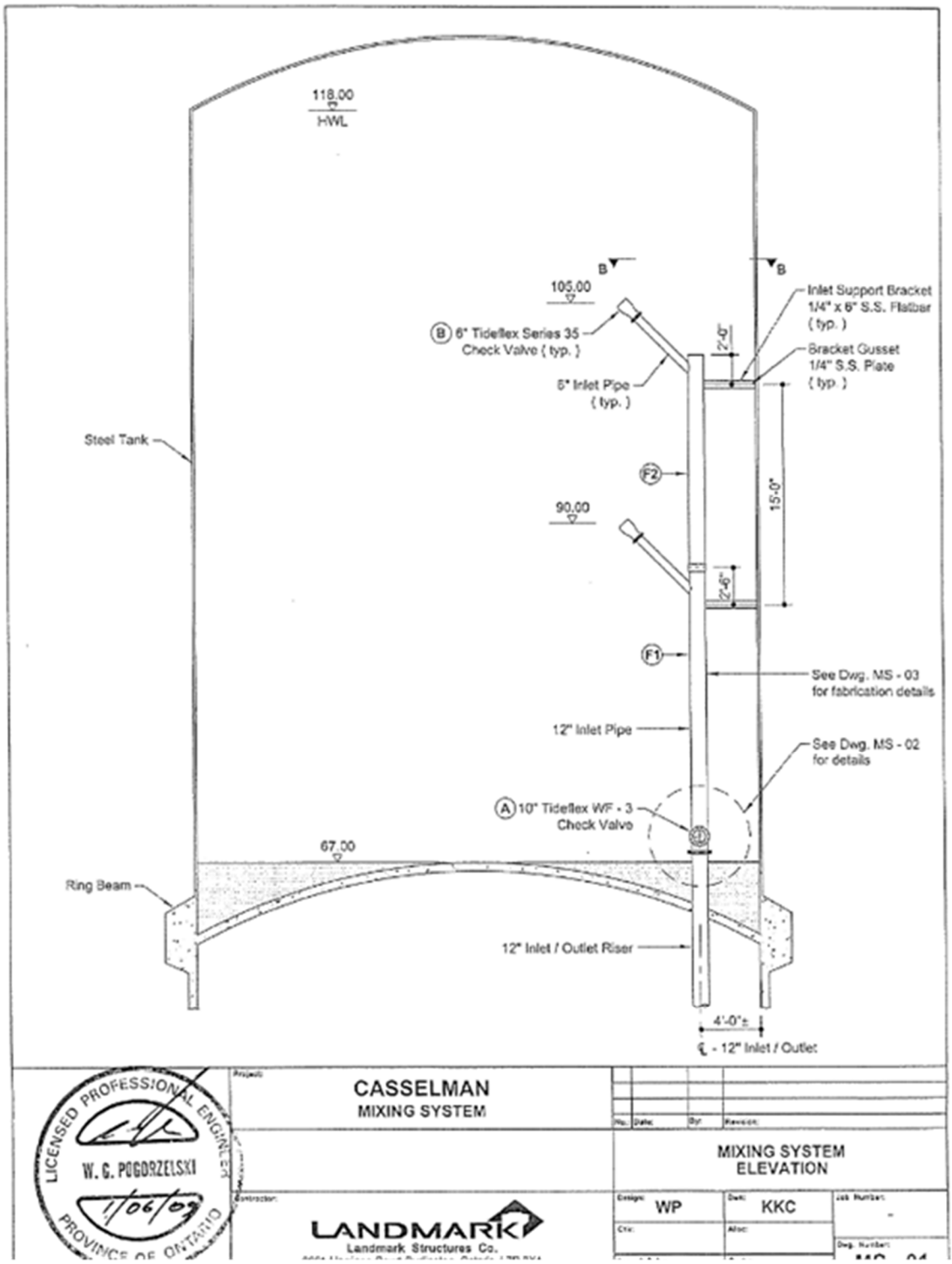
Dawn Crump
Senior Operations Manager
Nation Valley Cluster
Ontario Clean Water Agency
Cell: (613) 223-2207

From: Tatyana Roumie <troumie@jlrichards.ca>
Sent: April-04-23 9:27 AM
To: Dawn Crump <DCrump@ocwa.com>
Cc: Annie Williams <awilliams@jlrichards.ca>; Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: 16953-118 Casselman Infrastructure Master Plan - Water Modelling for Phase 2

Hello Dawn,

I am hoping you could provide the current operating start and stop levels for the standpipes.

FYI - In the previous Master Plan Phase 1 Report, we assumed that high level is 105 m and low level is 90 m. Please see the screenshot of the drawing below. These two levels match the Tideflex valves elevations.



Thanks,
Tatyana

Tatyana Roumie, EIT, M.Eng.

Casselman Water Model

Junction Elevations

ID	Label	Elevation (m)
766	J-210	63.00
800	J-226	64.82
801	J-227	65.26
803	J-228	66.00
805	J-229	66.00
807	J-230	64.00
809	J-231	63.15
811	J-232	62.00
813	J-233	66.00
821	J-236	65.57
823	J-237	67.00
870	J-249	67.00
876	J-252	68.00
1065	J-305	67.00
1070	J-306	66.00
1072	J-307	69.00
1074	J-308	67.00
1076	J-309	69.00
1079	J-311	68.00
1080	J-312	66.59
1084	J-313	66.00
1086	J-314	67.00
1089	J-315	64.00
1092	J-316	65.00
1094	J-317	66.00
1112	J-325	65.00
1115	J-326	68.00
1117	J-327	66.24
1178	J-330	66.00
1183	J-331	62.30
345	J-118	63.55
785	J-219	68.00
783	J-218	68.00
781	J-217	68.00
779	J-216	68.00
993	J-278	68.00
777	J-215	68.00
985	J-275	68.00
769	J-211	68.00
1032	J-296	68.00
1031	J-295	68.00
322	J-93	66.80
271	J-41	66.97
348	J-121	66.75
350	J-123	66.70
404	J-178	67.00
401	J-175	67.00

Casselman Water Model

Junction Elevations

ID	Label	Elevation (m)
402	J-176	67.00
403	J-177	67.00
405	J-179	67.00
878	J-253	66.62
319	J-90	66.44
347	J-120	66.50
349	J-122	66.50
343	J-116	66.45
845	J-240	66.62
321	J-92	66.30
352	J-125	66.30
342	J-115	66.29
335	J-106	66.40
336	J-107	66.40
237	J-7	66.45
374	J-147	66.00
317	J-88	66.00
277	J-48	66.00
337	J-108	66.25
787	J-220	66.01
340	J-113	66.14
292	J-63	66.00
270	J-40	66.23
354	J-127	66.00
353	J-126	66.00
272	J-42	66.14
245	J-15	65.90
267	J-37	66.45
1158	J-329	65.83
356	J-129	65.90
332	J-103	65.84
251	J-21	65.84
307	J-78	65.78
1108	J-324	65.75
996	J-279	66.00
998	J-280	66.00
1000	J-281	66.00
1002	J-282	66.00
1004	J-283	66.00
1017	J-288	66.00
1019	J-289	66.00
1025	J-292	66.00
1027	J-293	66.00
1029	J-294	66.00
359	J-132	66.00
263	J-33	65.75
255	J-25	65.78

Casselman Water Model

Junction Elevations

ID	Label	Elevation (m)
358	J-131	65.92
867	J-248	65.77
357	J-130	65.90
327	J-98	65.60
234	J-4	65.99
260	J-30	65.84
266	J-36	66.14
355	J-128	65.60
264	J-34	65.75
318	J-89	65.50
268	J-38	65.78
244	J-14	65.53
306	J-77	65.47
236	J-6	65.96
265	J-35	66.05
254	J-24	65.53
408	J-182	65.40
242	J-12	65.69
304	J-75	65.38
256	J-26	65.47
293	J-64	65.38
361	J-134	65.35
243	J-13	65.38
259	J-29	65.62
320	J-91	65.30
312	J-83	65.29
325	J-96	65.30
257	J-27	65.38
273	J-43	65.38
241	J-11	65.53
238	J-8	65.53
276	J-47	65.23
411	J-185	65.20
316	J-87	65.20
274	J-45	65.29
294	J-65	65.23
235	J-5	65.53
326	J-97	65.20
288	J-59	65.23
249	J-19	65.23
253	J-23	65.23
308	J-79	65.08
309	J-80	65.05
344	J-117	65.23
360	J-133	65.32
760	J-208	65.00
753	J-205	65.00

Casselman Water Model

Junction Elevations

ID	Label	Elevation (m)
376	J-149	65.00
328	J-99	65.00
285	J-56	65.01
269	J-39	65.20
948	J-260	65.00
949	J-261	65.00
950	J-262	65.00
951	J-263	65.00
952	J-264	65.00
969	J-268	65.00
303	J-74	64.92
382	J-155	64.88
331	J-102	64.90
290	J-61	64.92
375	J-148	64.85
252	J-22	64.92
305	J-76	64.83
407	J-181	64.81
291	J-62	64.86
323	J-94	64.80
247	J-17	64.92
409	J-183	64.80
410	J-184	64.79
370	J-143	64.78
311	J-82	64.77
284	J-55	64.83
289	J-60	64.83
333	J-104	64.80
334	J-105	64.80
367	J-140	64.75
301	J-72	64.77
287	J-58	64.80
362	J-135	64.74
330	J-101	64.70
240	J-10	64.92
295	J-66	64.70
248	J-18	64.77
302	J-73	64.62
369	J-142	64.61
373	J-146	64.60
329	J-100	64.60
246	J-16	64.62
286	J-57	64.59
324	J-95	64.50
381	J-154	64.50
744	J-201	64.50
746	J-202	64.50

Casselman Water Model

Junction Elevations

ID	Label	Elevation (m)
314	J-85	64.47
250	J-20	64.47
239	J-9	64.62
406	J-180	64.30
315	J-86	64.30
371	J-144	64.29
310	J-81	64.28
363	J-136	64.26
313	J-84	64.25
365	J-138	64.15
339	J-110	64.10
366	J-139	64.10
368	J-141	64.09
773	J-213	64.11
364	J-137	64.05
233	J-3	64.47
775	J-214	64.09
748	J-203	64.00
763	J-209	64.00
372	J-145	64.00
232	J-2	64.25
771	J-212	63.97
346	J-119	63.55
261	J-31	63.40
296	J-67	63.30
283	J-54	63.20
758	J-207	63.00
828	J-238	63.04
258	J-28	63.25
298	J-69	62.80
280	J-51	62.80
282	J-53	62.80
262	J-32	62.94
281	J-52	62.75
279	J-50	62.60
300	J-71	62.40
341	J-114	62.48
338	J-109	62.40
297	J-68	62.20
278	J-49	62.10
275	J-46	61.97
299	J-70	61.80
231	J-1	61.94
831	J-239	58.00

Casselman Water Model

Maximum Day Demand + Fire Flow - Existing

2 Pumps on, Standpipe HGL= 100.52 m